

THE MINERAL INDUSTRY OF BOSNIA AND HERZEGOVINA

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In 1995, Bosnia and Herzegovina continued to be under extreme duress from the ongoing civil war. Before the outbreak of the civil war, the country was a major producer of minerals and heavy industrial products in the former Yugoslavia. However, the operational status of many of these industries in 1995 remained uncertain because of the fighting that reportedly occurred in close proximity to these facilities. In addition, the damage incurred by the country's industry and infrastructure had been severe. According to information supplied by sources in Serbia and Montenegro, the Serbian-controlled areas of Bosnia and Herzegovina (about 70% of the country's total territory), known as the "Srpska Republic," controlled substantial proportions of Bosnia and Herzegovina's mineral resources. According to the Bosnian-Serb Chamber of Commerce, the share of mineral resources within Serbian-dominated areas of Bosnia and Herzegovina were as follows: bauxite, 12%; brown coal, 37%; gypsum, 88%; iron ore, 68%; lead and zinc ore, 35%; lignite, 12%; and quartz, 89%.¹

The statistical base for the production table for Bosnia and Herzegovina was obtained from data presented in a variety of statistical publications of the former Yugoslavia through 1991. The major portion of the base for the country's production statistics was "Industrijska Proizvodnja," an annual statistical compendium published in Belgrade through 1990 that presented production data by constituent Federal Republics, as well as by total output for the former Yugoslavia. Statistical information on the country's mineral production for 1992-95 was not available because of the war. Presumably, when and where possible, the Government provided assistance to industries, including those in the minerals sector, that could help maintain employment and assist in the country's defense. Estimates were based on known capacities and available press reports concerning the status of industrial operations in the country. (See table 1.) Moreover, detailed official information concerning foreign trade for 1994-95 also was unavailable. Table 2, which lists the apparent administrative bodies as well as subordinate production units of the main branches of the country's mineral industry for 1994, was based on known industrial capacities prior to the outbreak of the civil war. (See table 2.)

Before the dissolution of the Socialist Federal Republic of Yugoslavia and the subsequent civil war, Bosnia and Herzegovina was a major center for metallurgical industries

in the former Yugoslavia. The country's total output of steel had ranged between 38% and 39% of total steel production for Yugoslavia. The Rudarsko Metalurški Kombinat plant at Zenica, with a combined production capacity in excess of 2 Mt/yr, in 1990, accounted for 53% of the former Yugoslavia's output of steel produced in oxygen converters and 62% produced by the open-hearth method.

Bosnia and Herzegovina also was a major producer of bauxite, alumina, and aluminum in the former Yugoslavia, respectively accounting for about 58%, 68%, and 26% of total output of these commodities in 1990. Production of bauxite, alumina, and aluminum was administered by Energoinvest. Bauxite was produced at mines in Vlasenica, Jajce, and Bosanska Krupa among others. Alumina refineries were operated at Birac-Zvornik and Mostar; the aluminum smelter also was at Mostar, the center of the aluminum fabricating and aircraft industries in the former Yugoslavia. The production of other nonferrous metals included only a relatively small amount of lead and zinc ore mined and milled at Srebrenica, the focal point of major battles during the year. Bosnia and Herzegovina was a major producer of asbestos, barite, gypsum, and salt, accounting respectively for about 81%, 92%, 63%, and 100% of the total output of these commodities in the former Yugoslavia in 1990. The country also produced cement, clays, dimension stone, dolomite, sand and gravel, as well as other industrial minerals that met most of its industrial needs.

Bosnia and Herzegovina's SOUR Titovi Rudnici Uglja Tuzla, the country's dominant coal producer, mined brown coal and lignite that were consumed primarily by the country's thermal electric power stations. Bosnia and Herzegovina's refineries, operated by Energoinvest at Bosanski Brod, were entirely dependent on deliveries of natural gas and petroleum from outside the country. Reportedly, the Bosanski Brod refineries were extensively damaged in April 1993 during local fighting. Petroleum pipelines were 174 km in length; however, data for natural gas pipelines were not available.

The eventual transformation of Bosnia and Herzegovina's economy to a market-based system will require a reevaluation of the country's mineral resources from a market perspective. For a detailed explanation of the system that was used to determine reserves in the former Yugoslavia, see the reserve section in "The Mineral Industry of Russia" report in this

publication series.

Most of Bosnia and Herzegovina's heavy industrial facilities, including those in the minerals sector, reportedly had been heavily damaged during the year. Although the extent of the damage was not clear, general information released from the areas of conflict showed significant destruction of the country's infrastructure and massive dislocations of regional populations. The process of

reconstruction that should follow the resolution of the country's conflicts should be extensive and would call for maximum use of the country's domestic sources of metals, industrial minerals, and fuels.

¹Foreign Broadcast Information Service (FBIS). EEU-94-071, Apr. 13, 1994, p. 40; from Politika (Belgrade) Mar. 15, 1994, p. 14.

TABLE 1
BOSNIA AND HERZEGOVINA: PRODUCTION OF MINERAL COMMODITIES e/ 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995
METALS					
Aluminum :					
Bauxite	900,000	200,000	100,000	75,000	75,000
Alumina	500,000	100,000	50,000	50,000	50,000
Metal, ingot; primary and secondary	84,000	30,000	15,000	15,000	15,000
Iron and steel :					
Ore and concentrate:					
Ore, gross weight	2,500,000	500,000	250,000	200,000	150,000
Ore, Fe content	800,000	150,000	70,000	70,000	52,000
Agglomerate	1,000,000	200,000	50,000	50,000	50,000
Metal:					
Ferroalloys:					
Ferrosilicon	17,000	5,000	1,000	1,000	1,000
Silicon	7,000	2,000	200	200	200
Pig iron	1,000,000	150,000	100,000	100,000	100,000
Steel, crude:					
From oxygen converters	600,000	100,000	90,000	90,000	90,000
From Siemens-Martin furnaces	150,000	30,000	20,000	20,000	20,000
From electric furnaces	18,000	5,000	5,000	5,000	5,000
Total	768,000	135,000	115,000	115,000	115,000
Semimanufactures	800,000	200,000	150,000	100,000	100,000
Lead :					
Mine andl concentrator output:					
Ore, gross weight (Pb Zn ore)	300,000	50,000	10,000	10,000	10,000
Pb content of ores	5,000	800	200	200	200
Pb concentrate	7,000	2,000	400	400	400
Metal, smelter, primary and secondary	400	250	100	100	100
Manganese ore :					
Gross weight	40,000	10,000	2,000	2,000	2,000
Mn content	14,000	3,500	600	600	600
Zinc :					
Zinc content of Pb-Zn ore	10,000	2,000	350	300	300
Concentrate output, gross weight	13,000	3,000	600	600	600
INDUSTRIAL MINERALS					
Asbestos, all kinds	4,400	500	500	500	5,000
Barite concentrate	17,000	3,000	2,000	2,000	2,000
Cement	750	150	150	150	150
Clays:					
Bentonite	6,000	1,000	800	800	800
Ceramic clay, crude	100,000	20,000	20,000	20,000	20,000
Kaolin :					
Crude	19,000	3,000	3,000	3,000	3,000
Processed	10,000	1,500	1,500	1,500	1,500
Gypsum :					
Crude	230,000	50,000	30,000	30,000	30,000
Calcined	21,000	4,000	3,000	3,000	3,000
Lime	350	50	50	50	50
Magnesite, crude	10,000	2,000	2,000	2,000	2,000
Nitrogen: N content of ammonia	20,000	5,000	2,000	2,000	2,000
Quartz, quartzite, glass sand :					
Glass sand	400,000	50,000	50,000	50,000	50,000
Salt, all sources	300,000	70,000	50,000	50,000	50,000
Sand and gravel, excluding glass sand	2,500	500	500	500	500
Sodium compounds :					
Soda ash	140,000	25,000	20,000	20,000	10,000
Caustic soda	70,000	20,000	10,000	10,000	10,000
Sodium bicarbonate	10,000	2,000	1,000	1,000	1,000

See footnotes at end of table.

TABLE 1--Continued
BOSNIA AND HERZEGOVINA: ESTIMATED PRODUCTION OF MINERAL COMMODITIES e/ 1/

(Metric tons unless otherwise specified)

Commodity	1991	1992	1993	1994	1995	
INDUSTRIAL MINERALS--Continued						
Stone, excluding quartz and quartzite :						
Dimension, Crude :						
Ornamental	square meters	250,000	50,000	20,000	20,000	20,000
Other	cubic meters	15,000	5,000	2,000	2,000	2,000
Crushed and brown, n.e.s.	thousand cubic meters	3,000	500	500	500	500
Sulfur: Byproduct of metallurgy		8	2	1	1	1
MINERAL FUELS AND RELATED MATERIALS						
Coal :						
Brown coal	thousand tons	9,500	2,500	1,000	1,000	1,000
Lignite	do.	8,000	2,000	1,500	1,500	1,500
Coke		850	150	100	100	100
Refinery products	thousand barrels	18,000	2,000	--	--	--

e/ Estimated

1/ In addition to commodities listed, common clay was also produced, but available information is inadequate to make reliable estimates of output levels.

TABLE 2
BOSNIA AND HERZEGOVINA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1995

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity
Alumina	Energoinvest	Plants at Birac-Zvornik	600
Do.	do.	Plant at Mostar	280
Aluminum	do.	Smelter at Mostar	92
Bauxite	do.	Mines at Vlasenica, Jajce, Bosanska Krupa, Posusje, Listica, Citluk, and other locations.	2,000
Coal:			
Brown	SOUR Titovi Rudnici Uglja, Tuzla	Mines in BiH	12,000
Lignite	do.	do.	7,000
Cement	Gik Hidrogradnja, Tvornica Cementa BiH	Plant at Kakanj	650
Ferroalloys	Elktrobosna, Elektrohemijaska i Elettrotermijska Industrija	Plant at Jajce	80
Iron ore	Rudarsko Metalurški Kombinat Zenica	Mines at Vares, Ljubija, and Radovan	5,000
Lead-zinc ore	Energoinvest	Mine and mill at Srebrenica	300
Manganese, ore	Mangan-Energoinvest	Mine and concentrator at Buzim	100
Petroleum, refined	thousand barrels per day Energoinvest: Rafinerija Nafte Bosanski Brod	Refinery at Bosanski Brod	100
Pig iron	Rudarsko metalurški Kombinat Zenica (RMK Zenica)	4 blast furnaces at Zenica 2 blast furnaces at Vares	2,250 100
Do.	do.	Electric reduction furnaces at Iljas	100
Salt	cubic meters per year Hemijski Kombinat "Sodaso," Rudnik Soli i Solni Bunari	Rock salt: Mines at Tusanj	120,000
Do.	do.	Production from brine at Tuzla, BiH	2,000,000
Steel, crude	Rudarsko Metalurški Kombinat Zenica	Plant at Zenica	2,060